

Potential Researches at NCREE – Geotechnical Engineering –

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Liquefaction Mitigations

- Existing building foundations in the potential liquefaction areas – verifications of feasibility and effectiveness of the mitigation methods for the local site conditions.
- Lifeline engineering – minimal damage or quick repairing

Shaking table tests

Field experiments

Identify the critical design parameters

Some of Mitigation Methods

- Soil aspect –

1. Soil strengthening: grouting (compaction, mixing), micro-piling
2. Drainage of pore water, lowering ground water level
3. Lateral confinement of liquefied soil beneath buildings

- Structure aspect –

1. Structure strengthening, especially the base slab
2. Pile foundations
3. Underpinning

Correlations among Tests of Multi-scales

Observations in
actual earthquakes

Field tests

Large 1-g tests

Centrifugal tests

Laboratory small
specimen tests

Multiscale Modeling